FTD-HT-66-66

AD635855

FOREIGN TECHNOLOGY DIVISION

A DEVICE FOR COMPENSATING THE LINEAR SHIFT OF AN IMAGE DURING OBLIQUE PHOTOGRAPHY WITH A SUCCESSIVE-FRAME AERIAL CAMERA

By

A. I. Sizov

UNEDITED ROUGH DRAFT TRANSLATION

A DEVICE FOR COMPENSATING THE LINEAR SHIFT OF AN IMAGE DURING OBLIQUE PHOTOGRAPHY WITH A SUCCESSIVE-FRAME AERIAL CAMERA

BY: A. I. Sizov

English pages: 3

SOURCE: Patent No. 165374 (Appl. No. 873614/26-10, December 30, 1963), 1 page.

TA6000685

PREPARED BY:

TRANSLATION DIVISION
FOREIGN TECHNOLOGY DIVISION
WP-AFB, OHIO.

A DEVICE FOR COMPENSATING THE LINEAR SHIFT OF AN IMAGE DURING OBLIQUE PHOTOGRAPHY WITH A SUCCESSIVE-FRAME AERIAL CAMERA

A. I. Sizov

The known devices for compensating a linear shift of the image during oblique photography by a successive-frame aerial camera do not preclude error due to a change of the scale, and, hence, the velocity of the image during transition from a near plan of the photograph to a distant. During inclination of the optical axis in a direction parallel to the flight direction, which is applicable for expansion of the enclosed band of locality, the image velocity in the narrow zones of the frame, which are parallel to the principle horizontal of the photograph, has practically an identical magnitude and direction. This condition enables us to eliminate the error of inclination by means of sequential exposure of the zones of the frame which are parallel to the principle horizontal by a continuous-action focal plane shutter with a simultaneous change of the rate of compensation in accordance with a change of the velocity of the image on the sections of the frame being passed over by the shutter slit.

In the device being described the continuous-action focal plane shutter is kinematically connected through a differential reducer

with the electric motor of the two-wedge compensator.

A diagram of the device being described is given in the drawing.

The aerial film 1, which is pressed to the levelling glass 2, is exposed by the continuous-action shutter 3, near which the screen 4 in the form of an endless ribbon with a transverse exposing slit moves at right angles to the direction of flight perpendicular to the principle horizontalof the photograph. Compensation of the linear shift of the image is carried out by the two-wedge compensator 5 located in front of the object 6. The compensator is set in motion by the electric motor 7 through the reducer 8. The mechanism of the shutter 3 is set in uniform motion from this same electric motor through the differential reducer 9.

The differential reducer enables us to regulate the angle of displacement of the exposure relative to the neutral position of the wedges, which is equal to the deflection angle of the wedges, during which the slit of the shutter passes across the center of the frame. This is accomplished by means of turning by a corresponding angle the axis of the differential reducer connected with the regulator 10 of the displacement angle.

During the synchronous operation of the two-wedge compensator and the focal-plane shutter with the regulated displacement of exposure time relative to the moment of the neutral position of the wedges, we can be sure, that at the moment of exposure of the narrow zones of the frame, which are parallel to the principle horizontal of the photograph, the velocity vector of the compensation displacement of the optical image in each zone is equal with respect to magnitude and oppositely directed to the velocity vector of the linear shift of the optical image in the absence of the compensator. This guarantees

the fulfillment of the required law of change of the rate of compensation along the field of the frame during uniform movement of all elements and minimizes the methodical decompensation in successive-frame aerial cameras during oblique photography.

Object of Invention

A device for compensation of the linear shift of an image during oblique photography by a successive-frame aerial camera by means of sequential exposure of the zones of the frame, which are parallel to the principle horizontal of the photograph, containing a focal plane continuous action shutter, a two-wedge compensator and electric motor, which is distinguished by the fact that with the purpose of fulfilling the required law of change of the rate of compensation along the field of the frame during uniform movement of all elements, the focal plane shutter is kinematically connected through the differential reducer with the electric motor of a two-wedge compensator.

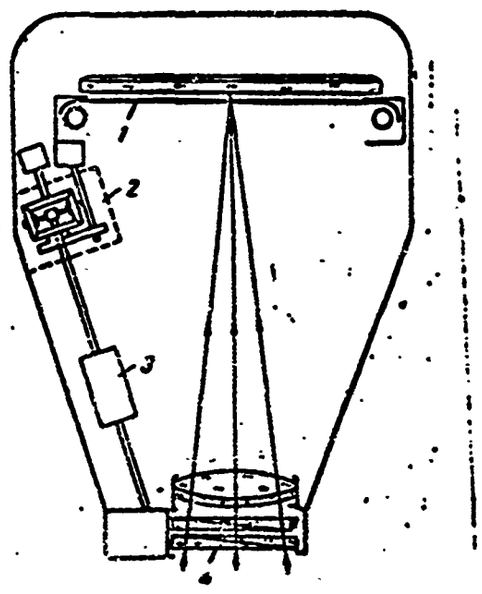

Fig. 1. 1 - Continuous focal plane shutter; 2 - differential reducer; 3 - electric motor; 4 - two-wedge compensator.